

CLAIMS

What is claimed is:

1 1. In a system having multiple communication modules coupled to a communication
2 pathway, a method of operating a communication module comprising:

3 powering the communication module;

4 operating the communication module initially in a secondary status;

5 broadcasting a request on the communication pathway for a response from a primary
6 communication module;

7 operating the communication module in a primary status if no response is received from the
8 primary communication module; and

9 broadcasting a message indicating the primary status.

1 2. The method of operating a communication module as defined in claim 1 wherein
2 broadcasting a request on the communication pathway for a response from a primary
3 communication module and operating the communication module in a primary status if no
4 response is received from the primary communication module further comprises:

5 starting a timer after the broadcasting a request step;

6 monitoring the communication pathway for a response from the primary communication
7 module; and

8 self promoting to the primary status if no response to the request is received before the
9 timer reaches a predetermined time.

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1 3. The method of operating a communication module as defined in claim 1 further comprising
2 continuing to operate in the secondary status if a response is received from the primary
3 communication module before the timer reaches a predetermined time.

1 4. A system comprising:
2 a first communication module;
3 a second communication module;
4 a first communication pathway coupling the first communication module and the second
5 communication module; and
6 wherein each of the first and second communication modules are adapted to initially
7 assume a secondary status, request a response from a primary communication module, self
8 promote to primary status if no response is received, and if applicable, broadcast the primary status
9 across the first communication pathway.

1 5. The system as defined in claim 4 wherein the first communication module is a power
2 supply communication module in a rack of servers.

1 6. The system as defined in claim 5 wherein the second communication module is a power
2 supply communication module in a rack of servers.

1 7. The system as defined in claim 6 wherein the first communication pathway is an RS-485
2 communication pathway.

1 8. The system as defined in claim 4 further comprising:
2 a third communication module coupled to the first and second communication modules
3 through the first communication pathway;
4 wherein the third communication module monitors the first communication pathway to
5 ascertain which of the first and second communication modules is primary; and
6 wherein the third communication module directs communications one of the first and
7 second communication modules that has taken the primary status.

9. The system as defined in claim 8 wherein the first communication module is a power
supply communication adapted to monitor a power supply assembly of a power supply system in a
rack of servers.

10. The system as defined in claim 9 wherein the second communication module is a power
supply communication module adapted to monitor a power supply assembly of a power supply
system in a rack of servers.

1 11. The system as defined in claim 10 wherein the first communication pathway is an RS-485
2 communication pathway.

1 12. The system as defined in claim 11 wherein the third communication module is a chassis
2 communication module adapted to communicate on behalf of servers within a particular chassis in
3 a rack of servers.

1 13. In a rack mounted server system having a central power supply, the central power supply
2 having at least two power supply assemblies, each power supply assembly having a
3 communication module coupled to other communication modules and other devices across a
4 communication pathway, a method of determining a primary communication module comprising:
5 assuming initially a secondary status;
6 requesting a response from the primary communication module;
7 promoting to a primary status if no response is received; and if the primary status is taken
8 broadcasting the primary communication module status.

1 14. The method of determining a primary communication module as defined in claim 13
2 wherein requesting a response from the primary communication module and promoting to a
3 primary status if no response is received further comprises:
4 broadcasting a request for a response from the primary communication module;
5 starting a timer; and
6 self promoting to the primary status if no response to the request is received before the
7 timer expires.

1 15. The method of determining a primary communication module as defined in claim 13
2 further comprising remaining in the secondary status if the response is received from the primary
3 communication module before the timer expires.

1 16. A communication module comprising:
2 a random access memory (RAM) device;

3 a read only memory (ROM) device;
4 a processor coupled to the RAM and ROM devices;
5 a first communication pathway coupled to the processors;
6 a second communication pathway coupled to the processor;
7 wherein the processor is adapted to execute programs stored on the ROM device; and
8 wherein the programs stored on the ROM device direct the communication module to
9 default to a secondary status for control of the first communication pathway, and wherein the
10 programs further direct the processor to request a response from a primary communication module
11 across the first communication pathway, self-promote to a primary status if no response is
12 received, and broadcast the primary status across the first communication pathway.

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17. The communication module as defined in claim 16 wherein the processor further comprises
18 a microcontroller.

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1 21. The communication module as defined in claim 16 wherein the ROM devices is an
2 electrically erasable programmable read only memory (EEPROM).

1 22. The communication module as defined in claim 16 wherein the programs stored on the
2 ROM device executed by the processor further direct the communication module to remain in the
3 secondary status if a response is received from the primary communication module.

1 23. The communication module as defined in claim 16 wherein the second communication
2 pathway comprises an I²C serial communication pathway.

1 24. In a system having multiple communication modules coupled to a communication
2 pathway, a method of operating a plurality of communication modules comprising:

3 powering the communication modules;

4 operating the communication modules initially each in a secondary status;

5 broadcasting a request on the communication pathway by each of the communication
6 modules for a response from a primary communication module; if no response is received from a
7 primary communication module; and

8 arbitrating among the communication modules by:

9 starting a timer in each communication module upon their respective broadcasts of
10 the request;

11 self promoting to a primary status by a first of the communication modules to have
12 its time expire; and

13 broadcasting by the first of the communication modules its primary status;

14 operating all but the first of the communication modules in a secondary status.

1 25. The method of operating a plurality of communication modules as defined in claim 24
2 further comprising choosing a primary communication module among communication modules
3 whose timers expire substantially simultaneously based on device addresses for each of the
4 communications modules whose timers expire substantially simultaneously.

26. The method of operating a plurality of communication modules as defined in claim 25 wherein choosing a primary based on device addresses further comprises choosing one of the communication modules whose timers expired simultaneously having the highest device address.